# BUYING ENERGY EFFICIENT PRODUCTS TO ACHIEVE YOUR AGENCY'S EPACT ENERGY USE REDUCTION GOALS

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## INTRODUCTION

The Energy Policy Act of 1992 and Executive Order 12902 of March, 1994 both require agencies to reduce their energy use by a total of 30% by 2005 as compared to 1985 base levels. The Federal Energy Management Program (FEMP) at the Department of Energy has responsibility for assisting federal agencies in achieving these goals. In the past, many agencies were well-funded to do construction and renovation projects that focused on improving energy efficiency. In the last several years budgets to fund specific energy efficiency projects have decreased. Even though we are on track to achieve the goal, this decline in funding will seriously impact the government's ability to successfully attain the goal. The recent focus on mitigating and lowering the federal government's impact on Global Climate Change has also renewed interest in the government's progress toward the goal.

As a result of decreased funding for energy efficiency, new emphasis has been placed on those programs which can bring about reduced energy consumption without using scarce budget allocations. Initiatives announced under the President's Climate Change proposal in October of 1997 directed attention to many things that the federal government can do to reduce its own impact, as well as to serve as an example for the rest of the country. One ongoing initiative, an emphasis on energy efficient procurement, provides agencies with an opportunity to reduce energy consumption without needing special appropriations.

This paper will focus on that initiative, one of FEMP's programs: the Federal Procurement Challenge (the Challenge). The Challenge was developed according to requirements from EPAct and E.O. 12902 to assist agencies in identifying and increasing their purchase and specification of energy efficient products.

## THE FEDERAL PROCUREMENT CHALLENGE

For more than 20 years, programs to promote energy efficiency in

the United States have relied primarily on training and education, technical assistance, and financial incentives directed toward the design, financing, and completion of projects. While this approach has resulted in significant improvements in the energy consumption of individual buildings and, in some cases has changed entire building practices, it is a cost-intensive and time-consuming method of introducing energy efficiency. Promoting energy efficiency through a project-centered approach is becoming increasingly difficult due to the declining amount of utility and public funds available to support energy-efficient capital projects within the public, private, or institutional sectors. While such efforts deserve our continued strong support, it is clear that the amount of funding required to bring our existing building stock up to some basic level of efficiency cannot be accomplished through project-centered assistance alone.

In response to this need and to fulfill requirements of EPAct and E.O. 12902, FEMP began developing the Challenge. The Challenge is a technical assistance program designed to provide information on energy efficiency levels as well as to serve as a catalyst to help agencies incorporate energy efficiency in the procurement process. These changes seek to re-direct an existing stream of expenditures rather than create new ones. Funds are already being spent on appliances, equipment, construction materials, vehicles, and other products; the object is to convince purchasers to spend them differently with attention to life cycle cost rather than lowest first cost.

For purpose of this paper, we will use the term energy-efficient procurement to encompass not only energy efficient products, but also water conserving and renewable energy products. While the issues involved may vary among the three types of products, the process of purchasing them is similar.

## FEDERAL GOVERNMENT AS CONSUMER

The U.S. Government represents the single largest customer in the world for most energy-related products, spending over $70 billion/year to purchase supplies and equipment. Of this, energy-related products account for roughly $10-$20 billion. The majority of this is spent by the Department of Defense (DoD). The Defense Logistics Agency (DLA) serves as a supply source both for the military and for many civilian agencies.

The other major government supply agency is the Federal Supply Service of the General Services Administration (GSA), which provides other Federal agencies with both energy-related and non-energy goods and services, including $2 billion in computers and

communications equipment. Together, the GSA and DLA supply catalogs contain more than 4.3 million items. As significant as these numbers are, a large fraction of all supplies and equipment are purchased directly by agencies, and not through the GSA and DLA supply activities. Recent policy changes eliminated some mandatory requirements for using established supply sources and raised the limits for "small" purchases from commercial sources. Small purchases can be made with minimal paperwork or simply a government credit card.

Energy accounts for a significant share (approximately $3.7 billion/year) of the total operating cost of Federal buildings and facilities.1 Recent laws and administrative policies direct Federal agencies to reduce energy use by an average of 30% compared to 1985 levels. Several hundred million dollars are spent annually by these agencies for energy- saving retrofit projects, but an equally important means to achieve the targeted savings lies in the routine purchasing of energy- efficient products as part of facility operation and maintenance. These products include fluorescent task lights, energy-saving computers and copiers, efficient kitchen appliances, high- performance heat pumps and chillers, and "cool" (high-albedo) paint and roofing materials to reduce air conditioning loads. Outside of facilities themselves, additional savings are possible through the purchase of more efficient autos, trucks, tires, and vehicle accessories.

## FEDERAL POLICY MANDATES

As mentioned above, both EPAct and Executive Order 12902 provided strong program direction for the Challenge. EPACT directs Federal agencies to purchase energy-efficient products that are cost-effective on a life-cycle cost basis. It also instructs the Office of Management and Budget, with advice from the Department of Energy's Office of Federal Energy Management Programs (DOE/FEMP) and other agencies, to issue guidelines that will help agencies identify such products.

In a parallel effort, the Clinton administration's National Performance Review, designed to produce a "government that works better and costs less," includes several proposals for reforming government procurement. Many of these recommendations were included in a 1994 Federal Acquisition Streamlining Act. Others, related to environmentally preferable and energy efficient products, are being implemented primarily through Executive Orders. E.O. 12902 on "Energy Efficiency and Water Conservation at Federal Facilities," signed in March, 1994, directs DOE to cooperate with other Federal agencies in a government-wide initiative on energy efficient procurement. Part of the

requirement stipulated that agencies purchase energy-using products that are in the top 25% of energy efficiency for similar products. This will be discussed in greater detail below.

Another important regulatory action occurred in August, 1997 with the issuance of a Federal Acquisition Amendment. Among other changes to the Federal Acquisition Regulation was a change to Section 23.704. This section now specifically requires agencies to consider energy efficiency in the procurement process. It also specifies that agencies comply with the requirement to purchase in the top 25% of energy efficiency for similar products.

## BARRIERS TO BUYING ENERGY EFFICIENT PRODUCTS

Barriers exist in the effort to transform the procurement process to incorporate energy efficiency in purchasing decisions. These barriers include the decentralization of the procurement process, the number of organizations that develop their own specifications, the lack of data specific to energy consumption, the "triple split incentives," and competition with other procurement preference programs. The first two relate primarily to the difficulties associated with promoting the adoption of an energy efficient purchasing program such as the Challenge. The last three relate primarily to the implementation of energy efficient purchasing at an agency.

### Decentralization of the Procurement Process

Decentralization of purchasing decisions is a trend of critical importance that offers opportunities as well as barriers to implementation of government mandates for energy efficient procurement. Decentralization allows for purchasing decisions up to a specified dollar amount to be made directly by the agency requesting the product rather than through a central entity, such as the agency's procurement office or the GSA.

The challenge for FEMP posed by decentralization rests primarily in working with an increasingly complex web of decision makers. With centralized agencies no longer serving as the mandated supply source, just getting the message out on energy efficiency requires considerably more innovation and attention. The system continues to have key pressure points such as product specifiers, in-house newsletters, and recognized experts, but they require more time and effort to locate.

### Diverse Specifications

Many agencies have developed their own specifications to use in

designing construction and renovation projects. This provides an excellent opportunity to help agencies modify their specifications to include the recommended energy efficiency levels required by E.O. 12902 and the FAR. However, the large number of agencies with their own specifications requires that FEMP put in extra leg work to assure that all of the specifications incorporate energy efficiency considerations.

**Lack of Energy Efficiency Data**

Specifiers and purchasers who decide they would like to incorporate energy efficiency into their decision making process must then locate information that can support their decisions. In a survey done of state purchasing practices it was learned that many people do not have access to the right data and do not have the staff time to do the necessary research.2 Providing technical information is a challenge, however, it is one of the barriers that FEMP has best been able to address.

The key is providing the appropriate amount of information to the decision maker at the time that it is needed, recognizing that decisions are typically made first by facility managers and then supported or rejected by procurement officials. The best anecdotal information currently available from work with State and Federal decision makers suggests that vendors remain the primary source for product information, despite strong buyer preferences for an independent source.

**“Triple Split Incentives”**

Often the customer (facility manager or other end-user) is different from the buyer and both are distinct from the energy bill payer. This creates an environment where capital expenditures are frequently treated as if they are unrelated to operating expenses. A mandated focus on life- cycle cost is a helpful mechanism to bridge this gap, but the ability to capture some savings in operating costs for future capital needs is a far more powerful incentive.

**Other Procurement Preference Programs**

Finally, there is a significant number of other procurement preference programs that compete with energy efficiency, such as, requirements for domestic content of products, preferred suppliers, support of minority and women-owned businesses, even environmentally preferable products. While these programs also may provide a worthwhile benefit to society, they contribute to the confusing web of regulations that anyone executing a purchase must move through.

FEMP PROGRAM ACTIVITIES TO ASSIST AGENCIES

In the 2 and ½ years since the Challenge was officially signed by representatives of 22 agencies, representing 95% of federal purchasing, the program has developed several strong components that provide useful information to its customers. These components include tools available to assist employees performing a wide range of job functions (from energy managers to product specifiers and procurement officials) and coordination and outreach activities.

**Tools - *Product Energy Efficiency Recommendations***

EPACT and the E.O. 12902 direct agencies to buy products in the upper 25% of energy and water efficiency for comparable products, or at least 10% more efficient than the DOE-issued national standards.

As previously stated, facility managers and procurement officials responsible for procurement decisions need to have ready access to an appropriate level of information about product performance in order to successfully integrate energy efficiency considerations into their decisions. DOE/FEMP has made a commitment to provide a source of independent information on the energy characteristics and performance of "best practice" products through the *Product Energy Efficiency Recommendations* (*Recommendations*) initiative. The Federal supply agencies, GSA and DLA, are working with FEMP to develop a system to identify best practice products available through their catalogs and emerging online shopping services. Every effort is being made to link the energy efficiency levels identified for the *Recommendations* with commercial labeling programs such as Energy Star/Energy Saver and with specifications and other purchasing mechanisms.

Program coordination can greatly extend the impact of energy efficiency recommendations. For instance, coordination has produced a single set of criteria for defining an energy efficient chiller for both the FEMP *Recommendations* and a Basic Ordering Agreement being offered by GSA based on a specification developed by DOE Defense Programs. The resulting combined effort offers Federal purchasers a streamlined method of purchasing energy efficient chillers resulting in potential savings of more than $2 billion over the life of the equipment. Agencies are currently under pressure to replace a large number of chillers to comply with Montreal Protocol mandates to eliminate chlorofluorocarbons (CFCs).

The *Recommendations* are easy-to-use 2 page summaries that provide

the user with recommended performance criteria, an example illustrating cost effectiveness, buyers' tips, and sources of additional information, including product listings, where available. The supporting analyses that led to the criteria included in the recommendation are also available upon request. The material is distributed in a loose-leaf ring binder along with life-cycle cost methodologies, case studies, and other relevant background information (a binder may be ordered by calling 1-800-363-3732 and requesting Buying Energy Efficient Products). *Recommendations* are anticipated for approximately 60 product types. The information is also available electronically through the FEMP home page http://www.eren.doe.gov/femp/procurement.

The *Recommendations* focus on product types which are widely purchased by Federal agencies, use a significant amount of energy, offer a range of efficiencies (above any mandatory standard), and have a generally accepted method of testing and reporting energy performance. In some cases, where a product is inherently energy-saving (such as a lighting control, or building insulation) a numerical rating of energy efficiency may not be appropriate or practical. In such cases, DOE may instead issue an advisory memo to buyers, identifying desirable product features.

Where there are quantitative data on energy performance, DOE ranks the models available on the market and identifies an energy efficiency level for the upper 25%--but in any case at least 10% above an applicable Federal standard. Under some circumstances, this level may be adjusted to a level which includes more than 25% of the market to include additional models. For example, a lower criterion may be justified in order to include at least three competitive sources of supply (three manufacturers). Other adjustments may be needed to conform to a natural break-point in the product distribution, to address significant gaps in product availability, or for consistency with other Federal programs (e.g., product labeling by the DOE/EPA EnergyStar program). All recommended criteria are subjected to a peer review process by agency and product specialists prior to publication.

DOE publishes performance criteria in the *Recommendations*, rather than a list of acceptable products. Sources of reliable data on product efficiency will also be identified, for use by Federal purchasers. The Federal supply agencies (GSA, DLA) have agreed to use an "EE" symbol to identify products they supply that meet the DOE recommended efficiency levels. Each agency will determine how best to use the *Recommendations* in its purchasing practices, including both facilities operations and construction or renovation. Each agency will determine if a product that meets

the DOE recommended efficiency level is cost-effective for a specific application. The *Recommendations* include estimated lifetime energy use and cost savings to help guide these application-specific decisions. They will be updated when changes in the availability of products make it new recommended levels necessary. A more in-depth discussion of the methodology used to establish the *Recommendations* can be found in the ACEEE Summer Study paper "Development of Federal Energy Efficiency Product *Recommendations*."3

**Coordination and Outreach Activities**

Coordination begins within the FEMP program, including: design assistance, the Federal Relighting Initiative, SAVEnergy Audits, the In House Energy Management Program, model specifications, training and educational programs, the renewables working group, and the New Technology Demonstration Program. Coordination occurred with DOE Defense Programs and the GSA on the Basic Ordering Agreement for chillers. The Motor Challenge Program, the appliance and building standards programs, EPA/DOE Energy Star/Saver retail labeling program, and the Green Seal program provide additional opportunities for coordination. Model specifications prepared by the Federal supply agencies and the Energy Efficient Procurement Collaborative are also important sources for broadening the market message.

Finally, the Departments of Defense and Energy, and the National Institute for Building Sciences are collaborating on an effort to compile data bases of construction-related products that have been certified to conform to various public codes and standards, including Federal criteria for energy efficient products. The Building Products Preferred Approval Program has already agreed to include the energy efficiency recommended levels as defined by FEMP in their specifications. This program includes representatives from all the DOD services, as well as many civilian agencies including the Veterans' Administration, the Departments of Agriculture and Energy and the Environmental Protection Agency.

A second important element of coordination and outreach is to craft and present a single market message on energy efficiency for each product type. For example, before FEMP published a *Recommendation* on air conditioners, the criteria selected were considered within the context of labeling programs, consumer guides, Federal specifications, and other activities that may have an impact on the total market message. Similarly, once a set of criteria are identified, efforts must be made to search out and provide information on the *Recommendations* to programs that will affect the energy efficiency of air conditioners

purchased by all government purchasers. Achieving this goal requires thinking "beyond the box" to coordinate with other Federal, non-profit, and State initiatives directed toward the same product types.

One key to this coordinated approach to market transformation is the establishment of common technical criteria for energy efficiency, in order to provide a coherent signal to the market. These criteria can cut across traditional program boundaries, if they are used simultaneously for purchasing in existing government, institutional, and even corporate facilities; as a basis for best- practice new facility design and construction; and as a guiding principal in pursuing voluntary programs with manufacturers, retailers, and other prominent partners throughout the private sector.

Thus, an important part of the Federal strategy is to enlist other levels of government, as well as non-governmental purchasers, to voluntarily adopt the same energy efficiency criteria for their own purchasing. At the State level, these opportunities are being addressed through a multi-state Energy Efficient Procurement Collaborative with Federal support from DOE, EPA, and the Department of Defense (DOD). Within the utility sector, utility- sponsored rebates are coordinated through the Consortium for Energy Efficiency (CEE). Similar efforts could be extended, on a voluntary basis, to large institutional and corporate purchasers, perhaps in conjunction with third party product certification and labeling programs such as Green Seal and PowerSmart.

For government purchasing policies to have their greatest impact, they must be part of a visible, open process that encourages active participation by these other, non-Federal purchasers and a process of feedback to the manufacturers and sellers. Maintaining good communication with government vendors and manufacturers is essential to identify opportunities, resolve any performance problems with newly introduced technology, and assure that energy efficient products will be available in adequate quantities to meet both Federal and non-Federal demand. Market leverage increases in direct proportion to the stability and predictability of signals from major buyers--not just the scale of their purchasing. The more reliable the demand for efficient products, the easier it is for manufacturers and distributors to prepare to meet this demand, and the more profitable it will be for the private sector to introduce or expand a line of more efficient products.

Finally, where an agency such as DOE is also responsible for setting mandatory energy efficiency standards for some types of

equipment, the standard-setting activity needs to be in appropriate balance with procurement and other market-oriented programs. At best, the two can complement one another, with market pull programs establishing the commercial feasibility and market acceptance of higher efficiency products well before they are considered for a mandatory standard. At worst, the fear that today's "voluntary" program may lead very quickly to a mandatory standard could seriously erode industry interest and support.

The role of the supply agencies, for Federal, State, and local government buyers, continues to be important. While no longer mandatory sources, they are significant repositories of highly specialized knowledge that would be impossible for most buyers to replicate on contracts, warranties, bidding, manufacturer relationships, and technical specifications. They offer the benefits of prescreened, quantity purchasing of products that have already met bidding and other requirements. For a wide variety of products, the supply agencies continue to be a reliable source.

As the supply agencies come under increased pressure to be self-supporting (typically through small fees levied on products sold through their purchasing programs) they are seeking to add value as a way of retaining and attracting customers. Identifying products that meet government mandates for energy efficiency is one such added value. Innovations such as open-ended contracts, if properly managed, also offer both customers and manufacturers a flexible but defined framework within which to conduct business.4

## EVALUATING SUCCESS

Given the scope of DOE's program to redirect government purchasing toward energy efficiency, efforts to track progress are at the same time more important and more difficult. The importance of suitable monitoring and evaluation is not only to understand how well the procurement policies are working overall, but to get better feedback on specific areas where procedural constraints, buyers' lack of information, inadequate supplies of efficient products, or other barriers are hampering the program's intent.

Methods for evaluating the efficacy of procurement activities must begin with what is perhaps the most difficult measurement-base lining of current purchasing behavior. Decentralization of purchasing has resulted in less reporting of transactions data in any single location. The Federal Procurement Data Center, which formerly tracked many types of Federal purchasing above a $25,000 cut-off (tracking included the dollar value only, not

specific items purchased) has begun reporting only on purchases above $50,000, and this limit may be raised in the future--excluding many of the energy-related products of interest from the reporting stream. The supply agencies have records of some fraction of all purchases, with certain products such as lighting and appliances better represented than others. Some of these products are currently identified by their energy performance, but many are not. Very little data on energy performance is available for products purchased via credit card or otherwise outside of the central supply network. Surveys and focus groups are two possible methods for establishing baseline samples.

On the other hand, the increased use of electronic commerce may make it easier to build in tracking of purchases for selected items of interest, such as energy efficient products. Although it accounts for only a small amount of all supply agency purchasing activity, online shopping is expected to continue to grow rapidly now that credit card purchasing has been implemented in 1996.5 Still to be explored are ways of enlisting the vendors themselves, or manufacturer industry organizations, in helping to track the sales of higher- efficiency products to Federal customers. This approach includes some significant obstacles, including the proprietary nature of sales data and the possibility of additional reporting requirements, which may be overcome by offering manufacturers something of interest in return, such as recognition or increased product exposure. A special advantage in turning to sellers and manufacturers for data is that this could also provide insights to the indirect impacts on the broader commercial market from energy efficient purchasing in the Federal sector.

In terms of process evaluation, it is important to turn more directly to the actual specifiers and buyers throughout the Federal Government, and determine whether the general policy guidance and the product-specific information on energy efficiency, are reaching them in a suitable form. If this information and guidance are available, it is important to determine whether they are being followed--or why not. Are there needs for:

- additional training;

- faster and easier means of locating efficient products that comply with the Federal *Recommendations*;

- or a continuing need to help convince middle management and top-level agency administrators of the value of energy efficient purchasing?

Equally important is an understanding of the "indirect purchasing" undertaken by Federal contractors, in both long-term facility operations (such as DOE National Laboratories, run by university or private contractors), and one-time construction or renovation contracts.

Assessment of procurement policies is needed on at least two other levels, in addition to the direct effects (i.e., energy efficiency of products purchased by government agencies). It is also important to monitor the performance and longevity of these energy efficient products in actual use. Buying a product that is rated as efficient as it leaves the factory does not necessarily assure that it will be correctly installed, used, and maintained to achieve long-term, reliable savings. Finally, the impact of government purchasing on the larger market must be assessed, including purchasing patterns of other large institutional buyers, the sales-weighted average efficiency for a given product, and the commercial introduction of new, advanced technologies.

## CONCLUSION

Promoting energy efficiency through government procurement is a complex task with substantial energy savings and market transforming potential. Carefully crafted program materials that are easy to use; targeted training activities; an effective outreach program; and regular customer feedback are essential to program success. Working with other programs to achieve common energy efficiency criteria, whether Federal, State, or commercial in focus makes sense on several levels. It not only avoids confusion about what constitutes an energy efficient product, it also extends program reach without the commitment of additional resources.

A successful program provides a stable market for manufacturers of highly efficient equipment, since government agencies must replace worn or outdated equipment yearly, despite variations in budget allocations. All consumers ultimately benefit from greater availability and lower prices for best practice products and from the quicker and more reliable market entry of innovative products and technologies.

## ENDNOTES

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2. National Association of State Purchasing Officials State and Local Government Purchasing, 4th edition, pgs 115-121, Table 46; augmented by conversations with procurement officials from Ohio and Wisconsin.

3. Johnson, F.X., "Development of Federal Energy-Efficient Product Recommendations and estimate of expected energy savings," in Proceedings, ACEEE Summer Study on Energy Efficiency in Buildings, August 1996.

4. Summary of several phone conversations with Brenda Longest of US Defense Supply Center- Richmond, Virginia and Wendell Garner of US General Services Administration, Washington, DC.

5. From GSA and DLA presentations at FEMP Products Working Group Meeting on December 13, 1995 at Berkeley National Laboratory DC Project Office, Washington, DC.

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